

THICK BONES, ANCIENT LIVES: CRANIAL VAULT THICKNESS IN THE ETRUSCAN NECROPOLIS OF SPINA

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Background: Despite growing interest in skeletal robusticity, cranial vault thickness remains an underexplored trait in bioarchaeological studies. Its aetiology is multifactorial, involving ontogenetic processes, nutritional status, and possible pathological conditions.

Objective: This ongoing study focuses on the analysis of cranial vault thickness (CVT) in a sample of 30 adults from the Etruscan necropolis of Spina (Italy, 6–5th century BCE). Following the identification of a tendency toward cranial hyperostosis in the adult individuals of Spina, apparently unrelated to sex or skeletal robustness, this study aims to assess a possible connection between the thickening of the cranial bones and some observed alterations of the inner and outer surface.

Materials and methods: For this purpose we adapted and applied a methodology of analysis based on the division of the cranial surface into 4 areas and 16 smaller anatomic units: for each unit, we assessed the state of preservation and we measured the maximum and minimum thickness and the thickness at predetermined landmarks; then, we took into account the presence and severity of alterations (such as porotic lesions, abnormal blood vessels impressions, abnormally pronounced digital impressions and others).

Results: The comparison of our preliminary results with previously published studies confirms higher values of CVT for the Spina sample; this thickening seems to be more significant in the parietal bones, with some individuals presenting with areas of the vault up to 5 mm thicker than the cut-off. While the absence of significant porotic lesions rules out the possibility of porotic hyperostosis, the high incidence of encephalic vascular anomalies, including evidence of diploic veins impressions, and abnormal periosteal appositions, might relate to cases of high intracranial pressure and the subsequent activation of thermoregulating systems in the encephalon.

Conclusion: Thus, the increase in CVT values might be part of the ensuing processes of bone remodelling, associated with instances of abnormal cranial stresses.

Keywords: Cranial vault thickness; Cranial alterations; Cranial hyperostosis; Data recording method.